AIR FORCE MATERIEL COMMAND

LEADING EDGE

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Wright-Patterson Air Force Base, Ohio

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AFMC
AIR FORCE MATERIEL COMMAND

Contents

Volume 43 Number 5 May 2001

Digital photo of
Mr. Steven Conn

Cover by Capt.
Air Force Securi

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Digital photo of CV-22 Osprey courtesy of
Mr. Steven Connelly, CV-22 Program office

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Cover by Capt. CK Keegan
Air Force Security Assistance Center

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One year later

Commander's top priority is "taking care of people"

It was April 20, 2000, in front of hundreds of well wishers at the Air Force Museum here when Gen. Lester Lyles took over the Air Force's most diverse command.

One year later, Gen. Lyles is looking squarely ahead, following through on the ideas and initiatives he sees as the command's biggest challenges.

High on his list are people issues, like developing and implementing family-oriented programs and making sure the people who make the mission happen are properly cared for.

"We have a variety of people initiatives for AFMC's Year of the Family, and following through on them is my first priority," Gen. Lyles said. "We've got to make sure we're taking care of the entire spectrum of people within the command.

Work force shaping

"One important part is making sure our people who are on the job, who are actively doing the mission, have the tools, equipment and training they need to get their missions accomplished."

Military recruiting and work force shaping are additional challenges for the command's leaders.

An estimated 60 to 70 percent of AFMC's civilian work force is eligible to retire in the next five years.

To fight this battle he said the command's senior leadership must work aggressively with Congress and others to implement the work force shaping initiative, which is designed to replenish and reshape the work force so the command has the right mix of civilian scientists, engineers, craftsmen and other professionals to meet future mission needs.

Facing the challenge

"We're at the front of the battle in terms of the need," Gen. Lyles said of the work force shaping challenge. "It's still a struggle, but we've just started.

"The good thing is we've got the right kind of people working on it, and we have help from Congress and a belief that it's a problem that needs to be addressed. So, I think we've got the right focus to make it a success."

Setting goals

Other goals he's set for himself and the command include continuing to emphasize strong business management and cost controlling; supporting the war fighter; taking the command to the next level in acquisition excellence; having a greater and more profound role in science and technology; and forging new and better partnerships with the Defense Department and other federal agencies.

Looking back

In looking back at his first year as commander of Air Force Materiel Command, Gen. Lyles said the command has already had some successes in these areas, including the Air Force leadership charging AFMC with the advocacy and sponsorship of Air Force science and technology programs. AFMC is now responsible for pulling together the budget for all S&T efforts. Another success was designating center commanders as enterprise leaders for various systems and workloads.

"These two are probably our biggest successes," he said. "They have put us in a position where we can offer better services to the total Air Force.

Our number one mission

"We're doing a lot of things to better support the war fighters and to make sure they know we are dedicated to supporting them. It's our number one goal, our number one mission."

Gen. Lyles said his vision for AFMC is still the same as when he took command. That vision called for AFMC to continue its cost-control efforts, be the supplier of choice, be an organization of complete excellence that everyone recognizes, and take care of and support its people so they can accomplish the mission.

Top: On Sept. 13, 2000, during his first visit to Tinker Air Force Base, Okla., since becoming commander of Air Force Materiel Command, Gen. Lester Lyles saw Tinker's depot process first-hand. At the F101-GE-102 engine line, Gen. Lyles asked Mr. David Rupe, a mechanical work inspector, about the tool he was using on an F101. Bottom: Ms. Theresa Farris, a subunit chief in the KC-135 sheet metal structure unit, points out a special fixture underneath a KC-135 undergoing programmed depot maintenance. (Photos by Ms. Margo Wright, OC-ALC)

Retaining our people

"Our challenge is to make sure we can perform," he said. "We have to follow through and make each one of our initia-

One year later

Commander's top priority is "taking care of people"

tives as good and as successful as it can be. We must execute everything we have promised in our vision."

The general is also concerned about retaining blue suiters.

"We need to keep pressing to make sure we're doing everything we can to extol our benefits and retain the good people we have," Gen. Lyles said.

"We're in the battle for recruiting and work force shaping, and we're fighting hard. I feel positive we'll eventually be successful, but it's not going to be a quick victor," he said.

Improving communication

Mentoring and better communication will go a long way in this recruiting and work force shaping battle, according to Gen. Lyles.

He said the majority of people he talks to in his visits around the command complain that their supervisors and others in their chain of command aren't talking to them about their careers or the opportunities and challenges that come with them.

"They're not mentoring them and helping them along," he said.

The bottom line

Gen. Lyles added that many Air Force people are good mentors, but more needs to be done. The bottom line, he said, is that supervisors and leaders must talk to their people.

"Your people are the ones who are accomplishing the mission, so we've got to talk to them," he said. "As painful as it might be when time is short, this is critically important and we've got to figure out ways to do it better."

Looking toward the future

With his vision firmly focused on the future and his first year as commander etched in time, Gen. Lyles now presses on toward more years of supporting America's war fighters.

"AFMC is a great organization – I learn it every day I come into work and every time I go out and visit our people," he said. "I'm very pleased and honored to be associated with the people of Air Force Materiel Command."

— Tech Sgt. Carl Norman, AFMC Public Affairs

Communication — a two-way street

— Gen. Lester Lyles
Commander
Air Force Materiel Command

Gen. Lester Lyles at Tinker Air Force Base, Okla.

Most of us know the story of how Alexander Graham Bell and his assistant, Thomas Watson, invented the telephone. In 1876, the two were tinkering with a mechanism that they hoped would someday allow speech to be transmitted over wires. Watson listened to his crude receiver and heard Bell's crackling voice utter the words, "Watson. Come here, I need you."

Two key elements made this historic event happen. Bell's voice was actually carried over the wires, and Mr. Watson was listening. By listening, he completed the communication process and the message was received.

Communication is one of my guiding principles. Many of you have heard me say that I live by the phrase "communicate, communicate, communicate."

I believe it is important to us in the Air Force — and in our daily lives. We cannot function as an office, organization, community or society unless we communicate with one another.

But it is a two-way process. If the message is sent, but no one receives it, the communication process breaks down. Just like Mr. Watson, we all have to be good listeners. We all must strive to listen to the people around us. Whether it's the commander listening to one of his people or a young airman listening to guidance from his first sergeant, we cannot communicate unless we listen.

All commanders and supervisors, military and civilian, need to ensure a two-way flow of information is taking place with their people. Leaders, no matter at what level, need to hear from their people about their issues, concerns, thoughts and ideas. They in turn must share information with their people and their people must listen.

And listening involves more than simply turning an ear to what someone is saying. We must take the information we hear, process it, think about it and respond in some manner. We should not treat people the same way we treat our car radio – simply there for background noise and we "tune in" only when we hear something of interest.

There are, of course, many techniques and forums that foster good communication. And not everyone prefers to communicate the same way. Personally, I have an "open door" policy. This doesn't mean my office door is always open, but it does mean I am accessible.

You may prefer to communicate by phone or by walking around your work area and talking with people one-on-one, or meeting in a group session at an offsite or working lunch. The setting doesn't matter as long as that two-way communication is taking place.

Everyone should know they can get information to their supervisor or commander. However, this doesn't mean violating the chain of command or going "over someone's head." Everyone up and down the chain should be involved.

But most importantly, everyone should listen.

AFMC Leadership Triad

Gen. Lester Lyles
AFMC Commander

Lt. Gen. Charles Coolidge, Jr.
AFMC Vice Commander

Dr. Daniel Stewart
AFMC Executive Director

Base listings are followed in bold type by its primary AFMC organizations, the host unit. Other AFMC organizations with headquarters elsewhere, but which have people assigned to the base, are listed following the host unit.

Figures in the tables are for assigned personnel, a term for the actual number of people on the job.This is not the same as manpower authorizations, a term for the total number of positions with approved funding.

Figures are current as of Feb. 28, 2001.

AVERAGE AGE	AFMC	AF
Officers	35	35
Enlisted	30	29
Civilian	47	47

GENDER	MALE	FEMALE
Officers	80.8%	19.2%
Enlisted	78.9%	26.8%
Civilian	66.3%	33.6%

EDUCATION	
High school+	43.46%
Bachelor's	18.75%
Master's	12.47%
Doctorate	2.45%
Other	0.09%

BASE	OFFICER	ENLISTED	CIVILIAN	TOTAL
ARNOLD AFB, Tenn.				
Arnold Engineering Development Center	56	43	172	271
Contractors (Not employees of AFMC or included in totals)				*2572*
BROOKS AFB, Texas				
Aeronautical Systems Center	297	610	749	1656
Air Force Research Lab - Super Lab	36	49	103	188
Warner Robins Air Logistics Center			39	39
EDWARDS AFB, Calif.				
Air Force Flight Test Center	411	2381	2646	5438
Air Force Research Lab - Super Lab	17	21	150	188
Aeronautical Systems Center		1		1
EGLIN AFB, Fla.				
Air Armament Center	637	3243	2653	6533
Air Force Research Lab - Super Lab	50	13	254	317
Aeronautical Systems Center	4		3	7
Electronic Systems Center Hanscom	2	5		7
HQ AFMC	7	4	1	12
HQ AFMC-FOA			3	3
HANSCOM AFB, Mass.				
Electronic System Center	601	580	1180	2361
Air Force Research Lab - Super Lab	29	22	277	328
Air Armament Center - Eglin	3	1	3	7
HILL AFB, Utah				
Ogden Air Logistics Center	358	1638	9213	11208
Air Force Research Lab - Super Lab	2			2
Air Armament Center - Eglin	2			1
KELLY AFB, Texas				
San Antonio Air Logistics Center	74	529	983	1586
Electronic System Center - Hanscom	16	161	361	538
Oklahoma City Air Logistics Center			1	1

Compiled by Master Sgt. Dennis D. Davis and Ms. Karen Muterspaw, AFMC Personnel

BASE	OFFICER	ENLISTED	CIVILIAN	TOTAL
Warner Robins Air Logistics Center	2	5	154	161
Ogden Air Logistics Center		2		2
KIRTLAND AFB, N.M.				
Space and Missile System Center	110	35	93	238
Air Force Research Lab - Super Lab - LA	158	59	569	786
Aeronautical Systems Center	7		4	11
Air Armament Center - Eglin	167	1044	639	1850
Air Force Flight Test Center - Edwards	2	49	1	52
HQ AFMC Field Operating Agency	13		15	28
LOS ANGELES AFB, Calif.				
Space & Missile System Center - LA	734	319	1019	2072
Air Force Research Lab - Super Lab	1		1	2
MCCLELLAN AFB, Calif.				
Sacramento Air Logistics Center - McClellan	29	302	487	818
Ogden Air Logistics Center - Hill			1	1
Electronic System Center - Hanscom	1	8		9
ROBINS AFB, Ga.				
Warner Robins Air Logistics Center - Robins	332	1509	10432	12273
Air Force Research Lab - Super Lab	1	2	4	7
Air Force Flight Test Center	1			1
Electronic Systems Center - Hanscom	2	1		3
TINKER AFB, Okla.				
Oklahoma City ALC - Tinker	299	1089	12761	14149
Aeronautical Systems Center	1		1	2
Air Force Flight Test Center - Edwards	1	9	6	16
Air Force Research Lab - Super Lab	1	2	5	8
Electronic Systems Center - Hanscom	2	30	492	524
WRIGHT PATTERSON AFB, Ohio				
Aeronautical System Center	1276	1651	4651	7578
Air Force Flight Test Center - Edwards	1		33	34
Air Force Museum			90	90
Air Force Research Lab - Super Lab	259	52	1673	1984
Air Force Security Assistance Center	21	2	314	337
Air Armament Center - Eglin			20	20
Electronic System Center - Hanscom	19	25	443	487
HQ AFMC	296	173	893	1362
HQ AFMC - Field Operating Agency	41	85	274	400
Warner Robins Air Logistics Center - Robins		2	9	11

BASE	OFFICER	ENLISTED	CIVILIAN	TOTAL
ARNOLD	56	43	172	271
BROOKS	333	659	891	1883
EDWARDS	428	2403	2796	5627
EGLIN	700	3265	2914	6879
HANSCOM	633	603	1460	2696
HILL	362	1638	9213	11212
KELLY	92	697	1499	2288
KIRTLAND	457	1187	1321	2965
LOS ANGELES	735	319	1020	2074
MCCLELLAN	30	310	488	828
ROBINS	336	1512	10436	12284
TINKER	304	1130	13265	14699
WRIGHT PATTERSON	1913	1990	8400	12303
OTHER	997	2025	3071	6093
GRAND TOTAL	7375	17781	56946	82102

2002 Budget

DOD $294.8 billion

Air Force $103.1 billion

AFMC $ 42.8 billion

AFMC's budget includes $13.9 billion in Air Force Working Capital Fund, providing services paid for by operational commands.

Sources: AFMC FM, and the DOD Annual Report.

Personnel attached to AFMC bases

Many of AFMC's employees, while assigned to this command, actually serve at non-AFMC installations around the world.

These workers from 14 bases total more than 6093.

The largest component is from the Air Force Research Laboratory, with 1917 in such far flung spots as the Maui Space Survillance Facility in Maui, Hawaii.

The second largest group is from Hanscom AFB, Mass., with 1154 at locations such as Materiel Systems Group at Wright-Patterson AFB, OH., and Standard Systems Group at Gunter Annex, Maxwell AFB, Ala.

The makeup of these detached employees is predominantly civilian, however more than 3000 military members are included.

This unique group is assigned to 97 AFMC organizations at more than 40 different locations in Europe, the Far East and the United States.

Word change communicates AFMC's focus on mission

There's more to a name than people might think, according to Air Force Materiel Command officials.

The command recently changed the name of its business area focus to mission areas — a move designed to show its commitment to supporting the war fighter with a more common terminology.

"Since 1997 we've focused on the customer, the bottom line, outputs and understanding our costs more, and we've done that through a business-management approach," said Maj. Gen. Todd Stewart, AFMC's plans and programs director.

"Now that we're making progress toward that end in our own organization, we want to be able to communicate more effectively and tell the command's story to the rest of the Air Force in a way that's more commonly understood," he said. "So we renamed AFMC's inner workings from business areas to mission areas to add more of a mission emphasis."

AFMC's mission areas

Science and technology discovers, develops, demonstrates and transitions affordable, integrated technologies that keep the United States Air Force the best in the world.

Test and evaluation provides customers the highest-quality development test and evaluation, air traffic control and weather services at the lowest possible cost.

Information management provides network services and data sharing to make sure customers have the right information anywhere, any time, on demand.

Product support provides life-cycle management for Air Force war-fighting systems.

Supply management provides spare parts needed in war and peace.

Depot maintenance repairs systems and spare parts to keep the Air Force ready in peacetime and provides sustainment for combat forces in wartime.

Information services develops, acquires, sustains and integrates combat support information systems for Air Force and Defense Department customers.

Installations and support sustains the missions and people at AFMC bases and deployed locations with quality facilities, environments and support services at the lowest possible cost.

Emphasis on efficiency

Under the leadership of Gen. George Babbitt (former AFMC commander), AFMC introduced a business-management analogy as a way to communicate the goals and objects they were trying to achieve.

This vision put heavy emphasis on building efficiency and effectiveness into every step of the process of supporting the Air Force war fighter with safe, reliable, powerful and affordable systems.

"My goal is to make sure everyone understands our number one objective is to support the war fighters for the United States Air Force."

Gen. Les Lyles

That vision has carried over to Gen. Les Lyles' command, and managing costs without sacrificing quality or effectiveness is still the goal.

"There is a real perception in the eyes of some key people in the Air Force leadership that AFMC has lost its focus on supporting the war fighters and that we're more interested in being a business organization and saving money instead of supporting the war fighters," Gen. Lyles said. "Nothing could be further from the truth.

"My goal is to make sure everyone understands our number one objective is to support the war fighters for the United States Air Force. AFMC's mission area focus is how we're able to operationalize our processes and how we operate on a day-to-day basis. It's the key to how we accomplish our mission. Our mission area management is the right thing to do for this command; it's the right thing to do for the United States Air Force; and it's had tremendous, tremendous payoff."

Although the command has experienced success with the business-type approach, Gen. Stewart's main concern is overcoming a predominantly "budget-management" culture, where people are focused primarily on getting more money and spending it all with little or no regard to what they accomplished.

"There's a notion among many Air Force people that if they don't spend all their money, they won't get it next year, and that's true," Gen. Stewart said. "But many people never ask the question, 'Do I really need it next year?' There's just always that assumption they always need more."

Becoming more efficient

He said the AFMC approach is trying to get people to ask, "What did I actually produce with my budget and did it meet standards or not? And if it did meet standards, how can I produce the same sort of output with less money?"

"That's a question we never really asked before," Gen. Stewart said. "We often paid lip service to the notion that we ought to give the federal taxpayer a break and try to be efficient. But, quite frankly, it was easier to whine for more money than to do the difficult task of really getting more efficient; so that's where we put our emphasis. It's time for that to change."

Gen. Stewart said he doesn't expect AFMC's terminology change to have a dramatic impact on the Air Force, but he hopes it will make it easer to communicate the command's philosophies and strategies.

"The way we do things is certainly not unique to this command, but I'd say to some degree, we're showing the way for others, and ourselves in that we're doing better than we used to," Gen. Stewart said. "I'm sure there are other organizations in the Air Force who are equally committed and aggressive in managing their outputs and productivity. I hope we can all work together, because we're not done with this journey by any means."

— Tech. Sgt. Carl Norman, AFMC Public Affairs

Ogden Air Logistics Center

Ogden Air Logistics Center, Hill Air Force Base, Utah, provides quality products and services to equip, maintain and sustain operational forces around the world.

Responsibilities

The center provides logistics management and depot maintenance for the F-16 Fighting Falcon, A-10 Thunderbolt and C-130 Hercules aircraft. The space and command, control, communications and intelligence systems directorate is the AFMC management office for assigned space and C3I systems, subsystems, programs and projects. The ALC annually overhauls more than 19,000 aircraft landing gear, brakes, struts and wheels — 100 percent of Air Force and 70 percent of the Defense Department's inventory. It is the designated technical repair center for composites to support structures on aircraft such as the B-2, C-17, F-117 and V-22. Ogden currently manufactures and repairs B-2 components and is responsible for providing photonics imaging and reconnaissance equipment; simulators and training devices; avionics, hydraulic, pneudraulic and radar components; instruments; gas turbine engines; power equipment systems; special purpose vehicles; shelters; and software engineering, development and support.

Weapon systems

F-16, C-130, A-10, B-2 Spirit, KC-135 and the Minuteman and Peacekeeper intercontinental ballistic missiles. The center is also the leading provider of rocket motors, small missiles, air munitions and guided bombs and serves as the ammunition control point for the Air Force.

Area

6,698 acres. The base also supports the 900,000-acre Utah Test and Training Range, the Defense Department's largest overland special-use airspace within the continental United States.

Tenants

388th (ACC) and 419th (AFRC) Fighter Wings, the Defense Logistics Agency, Defense Information Services Agency regional computer center, Army non-tactical generator and rail equipment repair center, Army Corps of Engineers, Air Force regional recruiting center, U.S. Forest Service and Defense Audit Agency.

Budget

$6 billion

Web address

http://www.hill.af.mil

Explosive ordnance test at the Utah Test and Training Range.

The north end of Hill Air Force Base, Utah, is a tranquil area until F-16s roar in for a landing. (OO-ALC photos)

Ogden is the technical repair center for instruments and display indicators, photonic systems and electrical assessories.

Oklahoma City Air Logistics Center

Cutting fan cores from an F110-100 augmenter liner at the general rework shop at Tinker.

F-100 fan drive unit. (Photos by Ms. Margo Wright, OC-ALC)

Oklahoma City Air Logistics Center, Tinker Air Force Base, Okla., is the logistics leader in providing specialized logistics support management, maintenance and distribution to defense weapons systems worldwide.

Responsibilities

OC-ALC is the largest Air Force industrial complex, providing worldwide cradle-to-grave logistics support for weapons systems including E-3, C/KC-135, B-52 and B-2 aircraft. The center manages and maintains an inventory exceeding $33 billion with nearly 23,000 engines, 3,000 missile systems and 24,000 components supporting 2,261 aircraft.

The center is the worldwide manager for a wide range of aircraft, engines, missiles and airborne accessory items and is responsible for depot level repairs, modifications, overhaul and functional check flight of B-1, B-52, C/KC-135, E-3 and the Navy's E-6 aircraft. Tinker also provides worldwide engine management for the F100, F101, F108, F110, F118, TF30, TF33, TF34, TF39, TF41, TF56, J33, J57, J69, J75, J79, J85, T56, T58 and T64, T400, T700 aircraft engines and the F107 and F112 missile engines.

Weapon systems

B-1B, B-2, KC-10, E-3, B-52 and C/KC-135 aircraft. Provides contractor logistics support for 417 commercial-derivative aircraft of 40 mission-design series, including airlift, tanker, executive transport, telemetry, training, airborne operations center and U.S. presidential aircraft. Missile systems managed by the center include the air launched cruise missile, advanced cruise missiles, harpoon and bomber weapons integration equipment.

Area

5,020 acres

Tenants

552nd Air Control Wing (ACC); 507th Air Refueling Wing (AFRC); 38th Engineering Installation Group (AFMC); 3rd Combat Communications Group (ACC); Strategic Communications Wing ONE (Navy); Defense Logistics Agency; Defense Information Systems Agency.

Budget

$6 billion

Web address

http://www.tinker.af.mil

Sacramento Air Logistics Center

Sacramento Air Logistics Center, McClellan Air Force Base, Calif., closing July 13, is working to successfully transition the remaining facilities and property on base to the county of Sacramento, help its remaining civilian workers deal with the transition and closure process, and move its remaining military personnel to other assignments.

Transition progress

SM-ALC used to be the primary maintenance depot for the KC-135 Stratotanker, the F-15 Eagle, the A-10 Thunderbolt II, and many more aircraft through the years. It was also heavily involved in space and communications-electronics.

Dedicated in 1939, McClellan played a key role in depot maintenance, supply management and program management for the Air Force and the Defense Department for more than 60 years.

Since 1995, Team McClellan has been working to divest its diverse missions and effectively transition the base facilities to civilian control by the county of Sacramento.

Today, more than 30 private businesses have moved to the base, joining several federal and state entities which will remain after closure. Among those are the Air Force Base Conversion Agency, Department of Veterans Affairs, the Defense Television-Audio Support Activity, the Defense Commissary Agency Western Region, the U.S. Coast Guard Air Station Sacramento, the University of California Davis Nuclear Research Center (formerly the McClellan Nuclear Research Center), and the Defense Microelectronics Activity.

County planners estimate the total work force at McClellan Park could exceed 30,000 in future years, including both governmental and private organizations.

More than 3,000 new jobs have already moved to the base.

Area

3,763 acres

Web address

http://www.mcclellan.af.mil/

Encasing of flags marks mission completion during the McClellan Appreciation Day ceremonies Sept. 21, 2000. (Photo by Tech. Sgt. Steve Milligan, SM-ALC Public Affairs)

SM-ALC used to be the primary maintenance depot for the KC-135 Stratotanker and the A-10 Thunderbolt II. Above: the nose of a KC-135. Left: A-10 undergoing inspection.

San Antonio Air Logistics Center

Mr. William Smith Jr., a former vehicle maintenance technician at Kelly AFB, Texas, is one of more than 2,000 Kelly people who have taken advantage of base small business assistance center classes. He has a successful golf cart and personnel transportation repair business called Cartsmith. (Photo by Mr. Dave Stokes, SA-ALC Public Affairs)

The 1995 Base Closure and Realignment Commission gave the San Antonio Air Logistics Center at Kelly Air Force Base, Texas, six years to transfer its workloads and close.

July 13, 2001, will mark the final day of the Air Force's oldest and largest depot.

Transition progress

In its final year, the mission of the San Antonio Air Logistics Center has been to conclude a successful transition.

The aerospace equipment management directorate realigned parts of its management to Ogden Air Logistics Center at Hill AFB, Utah, Oklahoma City ALC at Tinker AFB; Okla., and Warner Robins ALC, Robins AFB, Ga.

The aircraft accessories division realigned to Oklahoma City in the spring of 2000. The power systems division divided its missions between Ogden and Oklahoma City. Ground support equipment and automatic test systems realigned to Warner Robins.

The directorate of aerospace fuels management transferred from the Air Force to Defense Logistics Agency energy support center.

The C-17 directorate moved from San Antonio to Warner Robins. However, equipment managed by the C-17 directorate has transferred to Boeing, while the mature aircraft directorate transferred to Ogden. The missions performed by the nuclear weapons directorate consolidated at Kirtland AFB, N.M.; Ogden; Oklahoma City and Warner Robins.

Area

Some 80 percent of the 10.7 million square feet of buildings at Kelly have been transferred to the Greater Kelly Development Authority, or GKDA.

With major aerospace and logistics tenants in place, GKDA has made KellyUSA a desirable location for business in South Texas.

The existing airfield, over 2,100 acres, along with many Kelly base operating support functions and Kelly tenants, transitioned to the 37th Training Wing at Lackland AFB, Texas, April 1, 2001.

Web address

http://kellyforever.kelly.af.mil

Warner Robins Air Logistics Center

Warner Robins Air Logistics Center provides worldwide logistics management and depot maintenance for F-15, C-130, C-5, C-141 and utility aircraft, as well as all Air Force helicopters.

Responsibilities

The Warner Robins Air Logistics Center at Robins Air Force Base, Ga., provides logistical support for all Air Force missiles, the C-17, general purpose computers and avionics and electronic systems on most aircraft.

The center supports fire-fighting equipment and vehicles of all types and is the technology repair center for life support equipment, instruments (gyroscopes), airborne electronics and aircraft propellers. It is also responsible for procurement, supply and maintenance functions for most Air Force bases along the East Coast, as well as the Atlantic Missile Test Range, Newfoundland, Labrador, Greenland, Iceland, Bermuda, the Azores, and all Air Force security assistance program activities in Europe, Africa and the Middle East.

WR-ALC manages more than 200,000 items representing the full range of avionics functions and technology. These items include aerospace communications and navigation equipment, airborne bomb and gun-directed systems, target acquisition systems and most Air Force airborne electronic warfare equipment.

The center provides cradle-to-grave management support for the low-altitude navigational targeting infrared for night (LANTIRN) system, the joint tactical information distribution system and the worldwide military command and control system.

Weapon systems

F-15 Eagle, C-141 Starlifter, C-130 Hercules, C-5 Galaxy, U-2 Dragon Lady, C-17 Globemaster III, utility aircraft, Air Force helicopters including the MH-53J Pave Low III, HH-60 Pave Hawk, UH-1N Huey and Air Force missiles.

Area

8,722 acres

Tenants

Headquarters, Air Force Reserve Command; 93rd Air Control Wing (ACC); the 116th Bomb Wing (Georgia ANG); 5th Combat Communications Group (ACC); 19th Air Refueling Group (AMC) and the 78th Air Base Wing (AFMC).

Budget

$3.2 billion

Web address

Public: http://www.robins.af.mil
Military: https://wwwmil.robins.af.mil

An aircraft mechanic works on the fuselage of an F-15.

Above: A technician repairing an electrical wiring quick-connect fitting. Left: A programmable robot rivets the wing of an F-15.

Air Force Flight Test Center

An avionics specialist with the F-22 Raptor combined test force at Edwards Air Force Base, Calif., inspects one of the next-generation fighters being tested. (Photo by Mr. Derk Blanset)

Above: Space Shuttle Atlantis touched down at Edwards after completing a mission. (Photo by Mr. Jim Ross) Right: An F-22 Raptor sits at Edwards during sunrise. (Photo by Mr. Kevin Robertson)

The Air Force Flight Test Center at Edwards Air Force Base, Calif., is the AFMC center of excellence for research, development and test and evaluation of aerospace systems for the United States and its allies. It operates the U.S. Air Force Test Pilot School and supports non-military government agencies. The combat, combat support and training capabilities of most Air Force weapons systems were first proven at Edwards, giving AFFTC a direct, tangible link to each of the Air Force's core competencies.

Responsibilities

AFFTC assists in accomplishing the Air Force's overall mission, defending the United States and protecting its interests through aerospace power, ensuring current and future airmen have proven equipment when flying into harm's way and warriors operate battle-ready weapon systems.

The center's contribution to U.S. fighting forces results from test and evaluation. The primary purpose of test and evaluation is to influence the design of weapon systems, ensuring they meet operational war-fighting, combat support or training requirements.

AFFTC operates the Edwards Flight Test Range, which comprises 20,000 square miles of airspace, including three supersonic corridors and four aircraft spin areas.

Edwards has an array of ground test facilities. The Avionics and Test and Integration Complex, which includes the massive Benefield Anechoic Facility, allows for complete testing of a fully integrated avionics suite in a simulated flight environment, including electronic threats and computer software checkout. Major organizations are the 412th Test Wing and the 95th Air Base Wing.

Weapon systems

B-1B, B-2, B-52H, C-12C, C-17A, C-18, NKC-135E, CV-22, F-15A/B/C/D/E, N/F-16A/B/C/D, F-22, F-117, Joint Strike Fighter, A/T-38A/B/C, T-39A/B and the Global Hawk Unmanned Aerial Vehicle.

Area

301,000 acres, which includes 65 linear miles of usable landing area on Rogers and Rosamond Dry Lakes.

Tenants

Air Force Research Laboratory's Propulsion Directorate; Dryden Flight Research Center (NASA); 18th Space Surveillance Squadron (AFSC); 31st Test and Evaluation Squadron (ACC); Air Force Operational Test and Evaluation Center and Marine Aircraft Group 46, Detachment Bravo.

Budget

$762 million

Web address

http://www.edwards.af.mil

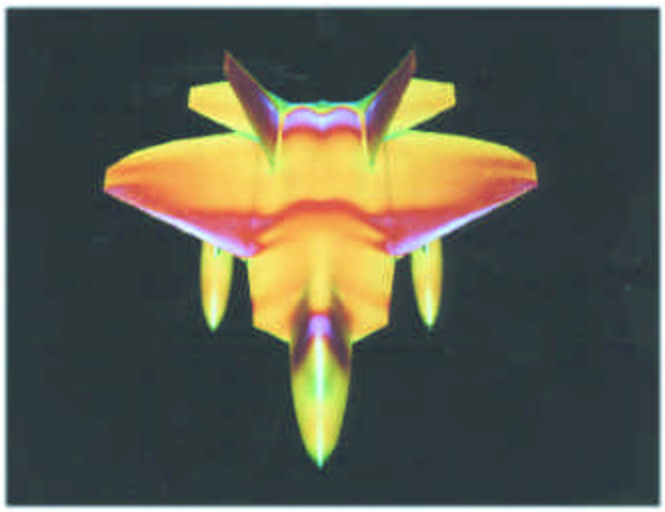
Arnold Engineering Development Center

Arnold Engineering Development Center, Arnold Air Force Base, Tenn., provides customers with the world's most effective and affordable aerospace ground test and evaluation products and services. The center also ensures AEDC ground test facilities, technologies and knowledge fully support today's and tomorrow's war fighters.

Responsibilities

AEDC is the Defense Department's largest aerospace ground test and evaluation complex. Center scientists and engineers perform tests, engineering analyses and technical evaluations for research, system development and operational programs for all the U.S. armed forces, other government agencies and commercial aerospace industry. AEDC has tested some component of virtually every high-performance aerospace system in the Defense Department inventory and most space vehicles.

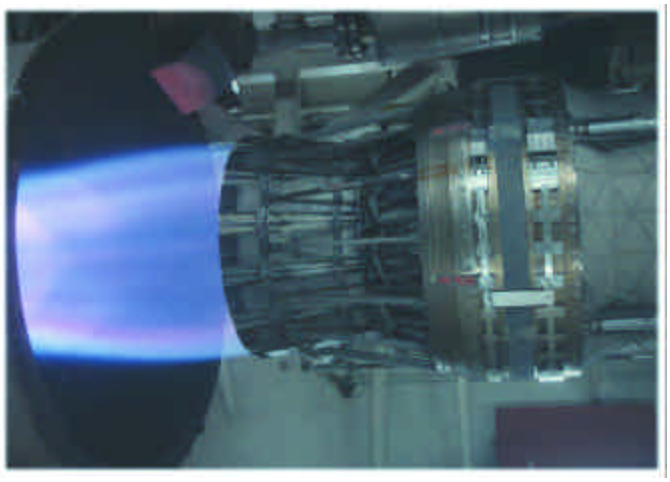
The center is unique in that almost 2,600 of its approximately 3,000 personnel are civilian contractors. There are 103 military personnel assigned, 251 government civilians and 51 non-appropriated fund and base exchange employees.



Computational fluid dynamics around the F-22.

Weapon systems

As a research, development, test and evaluation center, AEDC doesn't have a weapon system assigned. However, the center maintains a $7 billion infrastructure consisting of 58 aerospace test and simulation facilities, including wind tunnels, altitude jet and rocket test cells, ballistic ranges, arc heaters and space chambers. Twenty-seven of these facilities are unique in the United States and 14 are unique in the world. Every high-performance aircraft and missile in the Defense Department inventory has been tested here.



Above: Ram acceleration mission test. Left: A British Airbus model undergoes wind tunnel testing in the center's 16-foot transonic wind tunnel. (AEDC photos)

Area

39,081 acres, including the 5,000-foot airfield reactivated in 2000. Some of the area outside the test complex on Arnold is a Tennessee State wildlife management area, home to a large variety of wildlife.

Tenants

Air Force Office of Special Investigations, Air Force Audit Agency, Army and Air Force Exchange Service and the Defense Commissary Agency.

Geographically separated units

Hypervelocity wind tunnel 9, White Oak, Md.

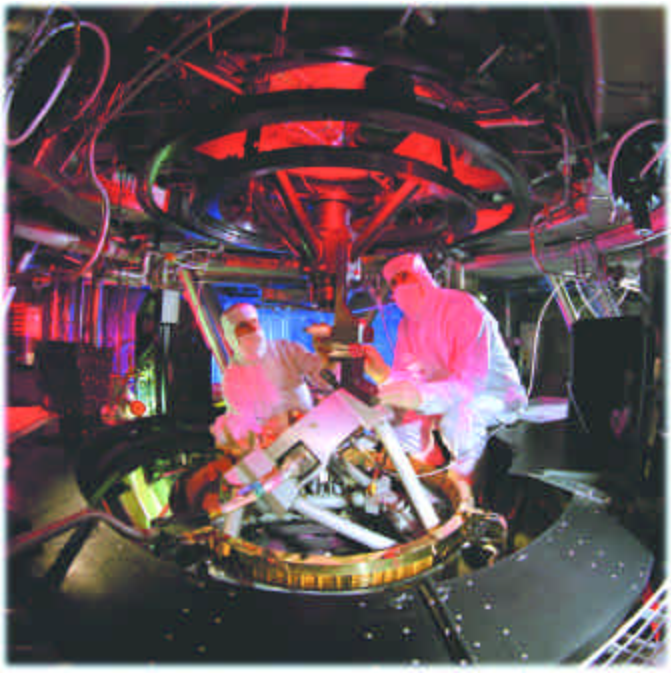
Budget

$322 million

Web Address

http://www.arnold .af.mil

Space and Missile Systems Center



Above: Laser technicians test the alignment of several key components located inside the Alpha Laser's 20-foot tall optical res onator. Right: The Defense Satellite Communcation System III B8 satellite launches into space aboard an Atlas IIA rocket from Cape Canaveral, Fla., Jan. 20, 2000. (SMC photos)

The Space and Missile Systems Center at Los Angeles Air Force Base, Calif., strengthens the nation's security by providing integrated, affordable systems for the control and exploitation of air and space.

Responsibilities

SMC is the technical center of excellence for researching, developing and acquiring military space systems and is responsible for on-orbit check-out, testing, endurance and maintenance of military satellite constellations and other Defense Department space systems. Major acquisition programs include the NAVSTAR global positioning system, MILSATCOM, evolved expendable launch vehicle, space-based laser and the Delta II and Titan II/IV launch vehicles.

The center works closely throughout space systems acquisition processes with its primary customer, Air Force Space Command, Peterson AFB, Colo. SMC also supports AFSPC with satellite tracking, data acquisition, command and control and maintains communications and data-handling operations.

SMC has operating sites throughout the country, including Detachment 9 at Vandenberg AFB, Calif.; Detachment 11 at Colorado Springs, Colo.; and Detachment 8 at Cape Canaveral, Fla. It is also the parent center of the space and missile test and evaluation directorate and the airborne laser system program office at Kirtland AFB, N.M.

Programs

Space-based infrared system, space-based laser, defense meteorological satellite program, evolved expendable launch vehicle, NAVSTAR global positioning system, satellite and launch control system, defense support program, Discoverer II, Atlas I, Delta II, Titan II, Titan IVA, Titan IVB, MILSATCOM and airborne laser program.

Tenants

Air Force Audit Agency; Detachment 1, 60th Aerial Port Squadron (AMC); Los Angeles International Airport; Defense Contract Audit Agency; Defense Systems Management College; Western Regional Center; Defense Contract Management Office; Western Office, National Imagery and Mapping Agency; and program executive officer for space.

Area

112 acres at Los Angeles AFB; 127 acres at Fort MacArthur military housing annex.

Budget

$5.5 billion

Web address

http://www.laafb.af.mil

Aeronautical Systems Center

Aeronautical Systems Center, Wright-Patterson AFB, Ohio, develops, acquires, modernizes and sustains the world's aerospace systems.

Responsibilities

ASC develops, acquires, modernizes and sustains aerospace systems through its acquisition work force and support units at Wright-Patterson, Brooks AFB, Texas, and other locations around the country.

ASC's major acquisition programs include fighter, bomber, transport, reconnaissance and trainer aircraft.

Current programs include the F-22 air dominance fighter, the C-17 inter- and intra-theater transport, the B-2 bomber and unmanned aerial vehicles for reconnaissance and other missions.

ASC also supplies the United States' export market through foreign military sales.

Area

8,357 acres

Tenants

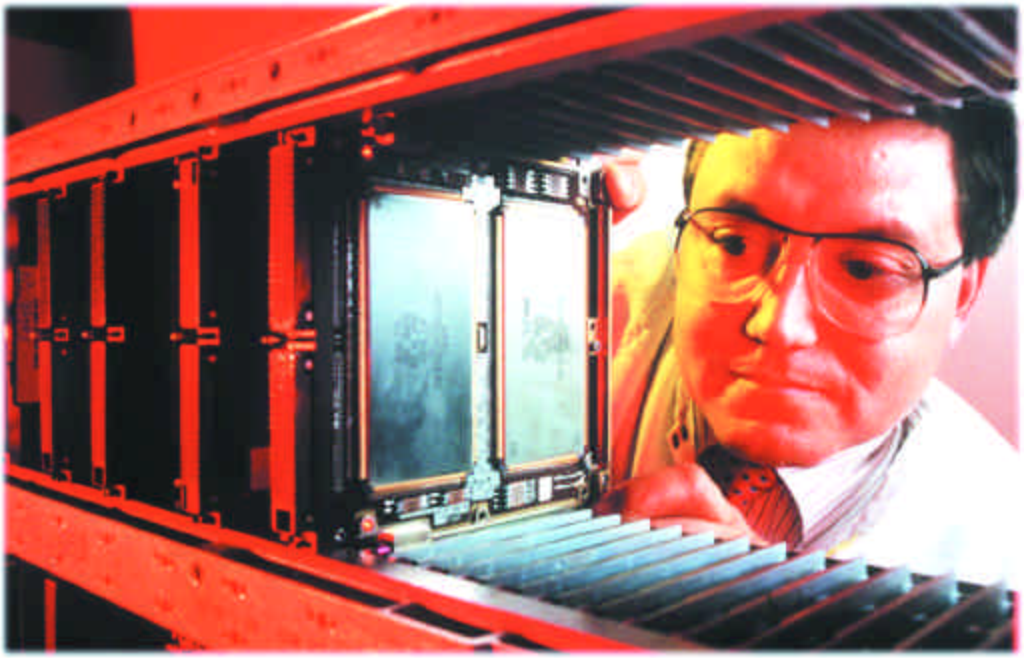
ASC supports more than 125 organizations at Wright Patterson and other U.S. locations. At Wright-Patterson, these include Headquarters Air Force Materiel Command, Air Force Research Laboratory, Air Force Institute of Technology, 445th Airlift Wing (AFRC), United States Air Force Museum, Air Force Security Assistance Center and National Air Intelligence Center.

Budget

$12.4 billion

Web address

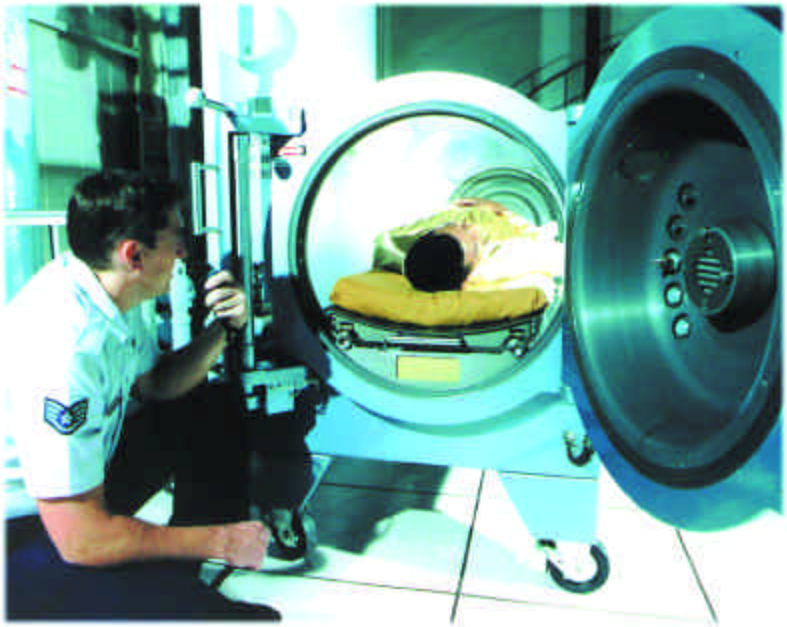
http://www.wpafb.af.mil



The F-22 air superiority fighter's first common integrated processor acts as the aircraft's computer "brain," hosting and executing software for the aircraft's avionics systems. (Hughes Aircraft photo)

Above: The historical Wright Flyer sits in the foreground with the B-2 bomber, "Spirit of Ohio," in the background. Left: ASC's major acquisition programs include transport aircraft like this C-141 Starlifter.

311th Human Systems Wing



Oxygen therapy is administered to a patient in a hyperbaric chamber at Brooks Air Force Base, Texas.

Above: A bioenvironmental engineer and public health specialist test water samples for environmental hazards. Right: The advanced spatial disorientation demonstrator recreates various spatial disorientation situations that pilots may encounter.

The 311th Human Systems Wing, Brooks Air Force Base, Texas, is the U.S. Air Force advocate for integrating and maintaining the human in Air Force systems and operations. Much of the work is considered transferable for commercial use and the wing actively seeks opportunities to offer new research and technological discoveries to interested parties. The 311th HSW is the human systems arm of the Aeronautical Systems Center, Wright-Patterson Air Force Base, Ohio.

Responsibilities

The wing's mission is to improve combat power and efficiency in human performance, protection and support through the many facets of aerospace medicine. The wing produces products that assess and manage health, safety and environmental risks for the U.S. Air Force and Defense Department. The 311th HSW trains more than 6,000 aeromedical personnel annually. Wing personnel manage more than 140 technical acquisition and sustainment programs. Through the Brooks City-Base Project's partnership between the Air Force and the City of San Antonio, the base will demonstrate new ways to improve mission effectiveness and reduce the cost of providing quality installation support.

Area

1,310 acres

Wing units

311th Air Base Group, the Human Systems Program Office, the U.S. Air Force School of Aerospace Medicine and the Air Force Institute for Environment, Safety and Occupational Health Risk Analysis.

Major tenants

Air Force Medical Support Agency, the Human Effectiveness Directorate of the Air Force Research Laboratory, the Air Force Outreach Program Office, Air Force Center for Environmental Excellence, 68th Information Operations Squadron and the Systems Acquisition School.

Budget

$162 million

Web address

http://www.brooks.af.mil

Air Armament Center

The Air Armament Center, Eglin Air Force Base, Fla., is responsible for development, acquisition, testing, deployment and sustainment of all air-delivered weapons.

Responsibilities

The Air Armament Center serves as the focal point for all Air Force armaments. It applies advanced technology, engineering and programming efficiencies across the product life cycle to provide superior combat capability to the war fighter.

The center plans, directs and conducts test and evaluation of U.S. and allied air armament, navigation and guidance systems and command and control, or C2, systems. It operates at two Air Force installations, providing host support to Eglin and Kirtland AFB, N.M., and supports the largest single-base mobility commitment in the Air Force.

AAC accomplishes its mission through four components: The armament product directorate (Eglin), 46th Test Wing (Eglin), 96th Air Base Wing (Eglin) and 377th Air Base Wing (Kirtland), and has approximately 7,600 military personnel; 3,700 civilians; 3,500 contractors and 535 non-appropriated funds personnel.

Weapon systems

Eglin is home to more than 40 weapon systems, including: surface attack guided munition, or ADM; advanced medium range air-to-air missile, or AMRAAM; EGBU-15, GBU-15, a modular air-to-ground weapon; the enhanced GBU-15; GBU-28, designed for use against deeply buried hardened command-and-control facilities; CBU-97/B sensor fuzed weapon; joint direct attack munition, or JDAM; joint air-to-surface standoff missile, or JASSM; and small diameter bomb, or SDB.

Area

The base is the largest military installation in the Defense Department and consists of more than 724 square miles of land area and more than 93,000 square miles of water ranges for testing and training.

Tenants

Eglin has more than 50 tenant units. Most prominent are the 33rd Fighter Wing, the 53rd Wing, the 919th Special Operations Wing and the Air Force Research Laboratory Munitions Directorate. Each military service is represented.

Budget

$3.2 billion

Web address

http://www.eglin.af.mil

An F-16 assigned to the 46th Test Wing at Eglin Air Force Base, Fla. (Photo by Ms. Cindy Farmer, AAC)

Above: An Eglin technical engineer adjusts the flight motion table during a simulated test of in-flight aircraft move ment. Left: An F-16 launches the joint air-to-surface standoff missile during a test.

377th Air Base Wing

Top: Security forces at Kirtland Air Force Base, N.M. 377th ABW's security forces squadron is the largest in AFMC. Above: A security forces defender provides cover for team members to move into position prior to a simulated offensive attack on an enemy bunker. Right: The headquarters building at Kirtland.

The 377th Air Base Wing, Kirtland Air Force Base, N.M., provides world-class munitions maintenance, readiness and base operating support.

Responsibilities

The 377th ABW operates both of the two critical asset depots in the United States for the Air Force.

As a unit of the Air Armament Center, Eglin AFB, Fla., the 377th supplies several hundred fully trained people for worldwide contingencies.

The wing provides security, legal, medical, fire response, personnel management, facility and utility management, housing, food service, chapel service, recreational, supply, airfield management and myriad of community support activities for active duty, retired and civilian employees.

Area

52,678 acres

Tenants

The 377th ABW provides support to 76 federal government and 384 private sector tenants and associates to include: Air Force Research Laboratory's Directed Energy and Space Vehicle Directorates; Sandia National Laboratories; Defense Threat Reduction Agency; Air Force Inspection Agency; Headquarters Air Force Safety Center; Air Force Operational Test and Evaluation Center; Department of Energy's Albuquerque Operations Office; Space and Missile Systems Center, Test and Evaluation (AFMC); Airborne Laser Systems Program Office; Theater Aerospace Command and Control Simulation Facility (ACC); 150th Fighter Wing (ANG); and the 58th Special Operations Wing (AETC).

Budget

$269 million

Web address

http://www.kirtland.af.mil

Electronic Systems Center

Electronic Systems Center, Hanscom Air Force Base, Mass., is a world leader in the development and acquisition of command and control systems.

Responsibilities

Many of ESC's programs, such as Joint STARS, AWACS, constant source intelligence systems, force protection systems and the airborne battlefield command and control center, performed well in past conflicts such as Operations Desert Storm, Joint Endeavor and Allied Force over Kosovo. ESC is constantly upgrading these systems to ensure they remain state-of-the-art and working with America's war fighters to ensure the right systems are delivered. Testing and experimentation occur throughout development. ESC's cooperative role with Air Combat Command in developing the new combined aerospace operations center is a prime example. These efforts are helping ESC move the Air Force toward a fully integrated and seamlessly interoperable command and control network, giving American and allied war fighters the right information at the right time so they can manage resources and defeat the enemy.

Weapon systems

Manages more than 200 programs, including: the Air Force Portal, CAOC-X, tactical automated security system, airborne battlefield command and control center, AWACS, combat intelligence system, core automated maintenance system/reliability and maintainability information system, integrated management communications contracts, joint surveillance system, joint surveillance target attack radar system, MILSATCOM terminal programs, multi-media automated system, multi-mission advanced tactical terminal, theater battle management core systems.

Area

846 acres

Tenants

MIT Lincoln Laboratory, Air Force Research Laboratory's Space Vehicles and Sensors directorates.

Geographically separated units

38th Engineering Installation Group, Tinker AFB, Okla.; Cryptologic Systems Group, Kelly AFB, Texas; ESC Detachment 5, Peterson AFB, Colo.; Materiel Systems Group, Wright-Patterson AFB, Ohio, and Standard Systems Group, Gunter Annex-Maxwell AFB, Ala.

Budget

$3.5 billion

Web address

http://www.hanscom.af.mil

Combined Aerospace Operations Center, Vicenza, Italy.

Above: AWACS in flight. Left: Joint STARS terminal.

Materiel Systems Group

Above photos: MSG Learning Resource Center. Bottom right: Multi-screen computing. (MSG photos)

Materiel Systems Group, a component of Electronic Systems Center, Hanscom Air Force Base, Mass., delivers agile combat support information solutions that enable the war fighter to achieve success.

Responsibilities

The Materiel System Group supports U.S. Air Force goals for information dominance by acquiring, developing, maintaining, reengineering and providing technical services for information systems. MSG is committed to delivering its customers high-quality products and services at realistic costs.

The group achieves Joint Vision 2020 objectives through their acquisition and technical expertise, and shapes and implements Defense Department processes for the research and development, delivery, and renewal of integrated combat support capabilities across the information domain.

MSG people develop partnerships and share investments with their customers, other government agencies, industry and academia.

The group provides leading-edge information services and technology, maximizing Defense Department operational effectiveness and efficiency.

MSG is responsible for the management of more than 150 information systems that have a combined operating budget of more than $300 million.

MSG's information technology application center, or ITAC, provides an atmosphere where knowledgeable workers can share information, have access to tools required to keep the Air Force on the cutting edge of technology and easily demonstrate this new technology to their customers.

The group is a high-performing, agile and learning organization, making our nation stronger militarily and economically.

Geographically separated units

Hill Air Force Base, Utah, and Tinker Air Force Base, Okla.

Budget

$323.8 million

Web address

https://www.msg.wpafb.af.mil

Standard Systems Group

Headquarters Standard Systems Group acquires, develops, integrates, implements and sustains secure, agile combat support information solutions for the Air Force and Defense Department components, enabling the war fighter to achieve success.

Responsibilities

Located at Gunter Annex, Maxwell Air Force Base, Ala., SSG is a component of Electronic Systems Center at Hanscom Air Force Base, Mass. The group designs, builds or buys, installs and supports the information systems necessary to provide the war fighter the right combat support information in the right place at the right time.

The information system program offices provide operational combat support capability through information systems for a diverse group of functions such as contracting, logistics, finance, medical and operations. This capability is provided to more than 420 active duty Air Force, Air Reserve, Air National Guard and other Defense Department units worldwide.

SSG's own in-house software development organization — the Software Factory — designs, obtains, develops, codes, tests, integrates, controls, distributes and sustains software for SSG systems. For all systems supported by SSG, the Software Factory provides test support, consolidated customer support and centralized distribution of software.

The field assistance branch, or FAB, is the 24-hour, 7-day a-week point of contact for computer system trouble calls in support of Air Force standard data systems originating from Department of Defense customers worldwide. The FAB evaluates problems and provides solutions for some 600 trouble calls a day.

Through the commercial information technology-product area directorate the group acquires quality commercial information technology hardware, software and services at great prices used by virtually every organization on bases worldwide. The IT superstore provides on-line ordering for affordable, readily available and easily accessible sources of supply for commercial information technology products and services.

SSG and the City of Montgomery sponsor the annual Air Force Information Technology Conference to bring computer users up to date on efforts of industry and government agencies through presentations by Air Force and industry senior leaders.

Geographically separated units

Operating locations at Robins AFB, Ga.; Tinker AFB, Okla.; Hill AFB, Utah; Kelly AFB, Texas; Geilenkirchen, Germany; and The Hague, Netherlands.

Budget

$260 million

Web site

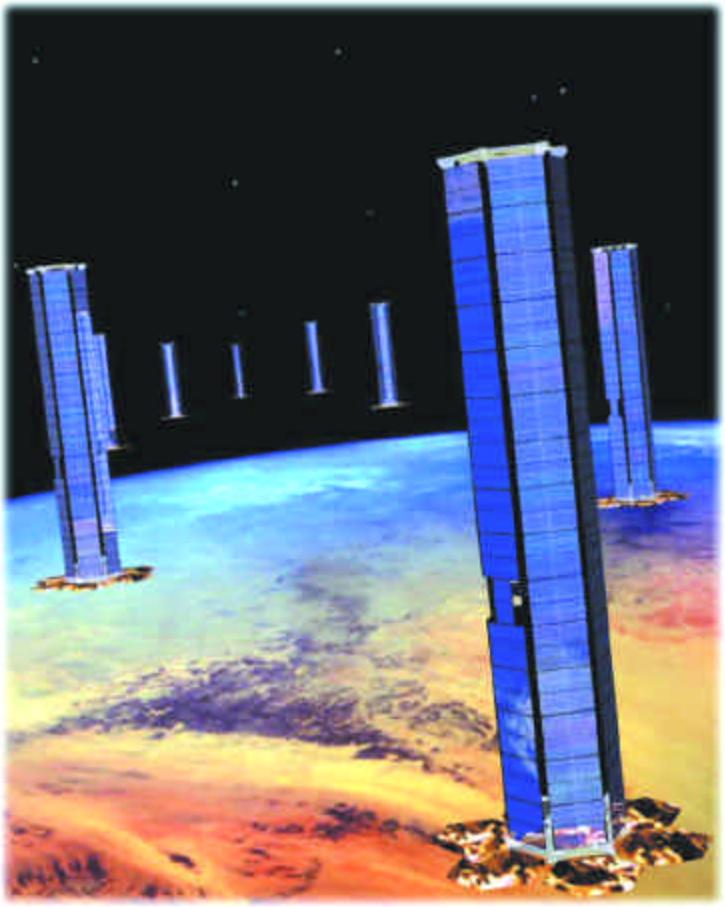
https://web2.ssg.gunter.af.mil

Two field assistance branch technicians evaluate a customer problem.

Above: An enterprise controller monitors local conditions from the Air Force network operations center. Left: An NCO from the communications environmental test lab makes a connection to a network-switching device. (Photos by Tech. Sgt. Darlene Foote)

Air Force Research Laboratory

Air Force Research Laboratory's sensorcraft.



Space vehicles directorate's TECHSAT 21.

Air Force Research Laboratory, with headquarters at Wright-Patterson Air Force Base, Ohio, was created in October 1997. The laboratory was formed through the consolidation of the four former Air Force laboratories and the Air Force Office of Scientific Research.

Mission

AFRL's mission is leading the discovery, development and integration of affordable war-fighting technologies for aerospace forces. It accomplishes this through nine technology directorates located throughout the United States, the Air Force Office of Scientific Research and a central staff. Partners include the Air Force major commands, which operate and maintain Air Force weapon systems. It is a full-spectrum laboratory, responsible for planning and executing the Air Force's entire science and technology budget, basic research, applied research and advanced technology development.

The lab employs approximately 5,400 government people, including about 1,300 military and 4,100 civilian personnel, and is responsible for the Air Force's science and technology budget of nearly $1.4 billion.

Directorates

Air Force Office of Scientific Research, headquartered in Arlington, Va., with a worldwide exchange program for scientists and engineers, is the basic research manager for AFRL. AFOSR invests in long-term, broad-based research into aerospace-related science and engineering. To accomplish this mission, AFOSR has formed a strong, productive alliance with other government agencies, U.S. industry and the academic community. Nearly 80 percent of the research is conducted in academia and industry and the remaining 20 percent is conducted within AFRL. AFOSR's investment in basic research programs is distributed to about 300 academic institutions, 145 contracts with industry and more than 150 internal AFRL research efforts.

Air vehicles directorate, headquartered at Wright-Patterson, leads the effort to develop and transition superior technology solutions that enable dominant military aerospace vehicles. The emphasis and vision are on technology investments that support cost-effective, survivable aerospace vehicles capable of accurate and quick delivery of a variety of future weapons or cargo anywhere in the world. To achieve this, core technology areas focus on aeronautical sciences, control sciences, structures and integration. Its workers target advanced concepts to direct the development of vehicle technologies that provide future capabilities in the areas of sustainment, unmanned air vehicles, space access and future strike.

Directed energy directorate, headquartered at Kirtland AFB, N.M., develops, integrates and transitions science and technology for directed energy, to include high-power microwaves, lasers, adaptive optics, imaging and effects to

assure the preeminence of the United States in air and space. Its people provide research and development for leading-edge space capabilities as well as techniques and technologies to transition optical systems to war-fighting commands. It is the Air Force's center of excellence for high-power microwave technology and the Defense Department's center of expertise for laser development. The Starfire Optical Range team conducts theoretical and experimental research in advanced tracking, adaptive optics, atmospheric physics and imaging of objects in space using large ground-based telescopes. The directorate also assesses potential applications and effects of systems using directed energy technologies.

Human effectiveness directorate, headquartered at Wright-Patterson, with additional research facilities at Brooks AFB, Texas; Mesa, Ariz.; and Edgewood, Md., develops, integrates and transitions science and technologies for training personnel, improving the interface between the warrior and weapon system, and protecting and sustaining Air Force war fighters to assure the preeminence of U.S. aerospace forces. It has eight core technology areas: warfighter skill development and training, training simulation, information display and decision support, crew system design technologies, directed energy bioeffects, toxic hazards effects, crew protection and logistician effectiveness. Partnerships with other technical directorates of AFRL impact 28 technology areas across the laboratory.

Information directorate, headquartered at Rome, N.Y., develops information technologies for aerospace command and control, and its transition to air, space and ground systems. Focus areas include a broad spectrum of technologies including information fusion and exploitation, communications and networking, collaborative environments, modeling and simulation, defensive information warfare and intelligent information systems technologies. Directorate scientists and engineers develop systems, concepts and technologies to enhance Air Force's capability to meet the challenges of the information age. The directorate has partnered with other elements of the federal government, national intelligence agencies, numerous allied nations, state and local governments, and more than 50 major universities to work problems of common interest.

Materials and manufacturing directorate, headquartered at Wright-Patterson, with an additional research facility at Tyndall AFB, Fla., develops new materials, processes and manufacturing technologies for use in aerospace applications including aircraft, spacecraft, missiles, rockets and ground-based systems and their structural, electronic and optical components. With a host of modern materials and analysis laboratories, it provides quick-reaction support and real-time solutions to Air Force weapon system acquisition offices, field organizations and maintenance depots to solve materials-related concerns and problems. Its people plan, execute and integrate advanced manufacturing technology programs and affordability initiatives addressing manufacturing process technologies, computer-integrated manufacturing and excel-

An engineer from the materials and manufacturing directorate injecting honeycomb.

Three-beam propogation at Starfire Optical Range.

The Propulsion Directorate's advanced gas turbine engines and advanced rocket engines.

Above: Human Effectiveness Directorate K-36D-3.5A ejection seat. Right: Space operating vehicle.

lence through design for military needs. This directorate is responsible for the Air Force technology programs that address environmental issues and provide materials expertise for such airbase assets as runways and infrastructures and technologies for aerospace expeditionary forces.

Munitions directorate, headquartered at Eglin AFB, Fla., develops, demonstrates and transitions science and technology for air-launched munitions for defeating ground fixed, mobile and relocatable, air and space targets to assure preeminence of U.S. air and space forces. Its people conduct basic research, exploratory development and advanced development and demonstrations. They participate in programs focused on technology transfer, dual-use technology and small business development. The directorate is dedicated to providing the Air Force with a strong revolutionary and evolutionary technology base upon which future air-delivered munitions can be developed to neutralize potential threats to the United States.

Propulsion directorate, headquartered at Wright-Patterson, with an additional facility at Edwards AFB, Calif., develops air and space vehicle propulsion and power technologies. Focus areas include turbine and rocket engines, advanced propulsion systems and associated fuels and propellants for all propulsion systems. Its people are responsible for most forms of power technology, making it one of the nation's leaders in their field. Programs address both future systems and the need to keep current systems competitive, safe, affordable and effective. The directorate has contributed technology to over 130 military and commercial systems.

Sensors directorate, headquartered at Wright-Patterson, with additional research facilities at Hanscom AFB, Mass., and Rome develops the new technologies that U.S. war fighters need to find and precisely engage the enemy and eliminate his ability to hide or threaten our forces. In collaboration with other AFRL directorates and Defense Department organizations, its people develop sensors for air and space reconnaissance, surveillance, precision engagement and electronic warfare systems. The directorate's vision is to provide a full range of air and space sensors, networked to the war fighter, providing a complete and timely picture of the battlespace and enabling precision targeting of the enemy and protection of friendly air and space assets. Core technology areas include: radar, active and passive electro-optical targeting systems, navigation aids, automatic target recognition, sensor fusion, threat warning and threat countermeasures.

Space vehicles directorate, headquartered at Kirtland, with an additional research facility at Hanscom, develops and transitions space technologies for more effective, more affordable war fighter missions. Its people leverage commercial, civil and other government resources that ensure America's defense advantage. Primary focus areas include: radiation-hardened electronics; space power; space structures and control; space-based sensing; space environmental effects; autonomous maneuvering; and balloon and satellite flight experiments.

Air Force Security Assistance Center

The Air Force Security Assistance Center at Wright-Patterson Air Force Base, Ohio, a specialized center under Air Force Materiel Command, provides program management and advocacy for international customers consistent with national security policy by integrating the customer's security assistance and international cooperative programs. This influences the DOD acquisition and sustainment process and ensures effective use of financial resources.

Responsibilities

AFSAC's program managers negotiate foreign military sales, or FMS, defense agreements with more than 90 foreign countries and international organizations. Part of FMS is sustaining foreign military aircraft, which AFSAC has been doing for about 20 years. Combined, the countries have about 9,000 aircraft ranging from the vintage C-47 to the modern Boeing 767 AWACS. This provides a worldwide network that enhances the security of the United States and its allies.

The "dual-hatted" commander is also head of AFMC international affairs. In this role, the commander is responsible for all international activities, including foreign military sales and security assistance policy, armaments cooperation with U.S. allies and foreign disclosure. The commander acts as AFMC's corporate leader for international business, and the AFMC liaison to international Defense Department agencies, NATO, foreign embassies and Defense Ministry officials and United States and foreign industry.

Weapon systems

C-47, C-118, C-119, A-37, C-123, T-33, T-37, C-7, F-100, F-104, T-38, A-7, C-130, F-111, F-4, F-5, F-15, F-16, E-3 and AWACS 767.

Budget

$25.8 million, approximately $24 million from FMS. The remaining is AFMC operating and maintenance money. With the budget, AFSAC generates $2.5 billion in revenue every year.

Web address

https://afsac.wpafb.af.mil

An Australian F-111 with associated munitions.

Canadian paratroopers near a Canadian C-130. (AFSAC photos.)

Aerospace Maintenance and Regeneration Center

Top: This C-130 fuselage, reclaimed for replacement on a damaged aircraft, departed for the country of Tunisia aboard a C-5 aircraft. Middle: Pictured here is the mold or template for the B-2 cockpit. Bottom right: This A-10 prepares to return to operational duty after a successful modification.

Aerospace Maintenance and Regeneration Center, Davis-Monthan Air Force Base, Ariz., provides for aerospace maintenance and asset regeneration for the sustainment of the war fighter.

Responsibilities

Initially established as a storage activity for surplus aircraft at the end of World War II, AMARC's role has grown considerably. Today its mission includes the storage of more than 4,600 aircraft, the reclamation of millions of dollars' worth of parts to support ongoing flying operations and the regeneration of aircraft for operational use by our forces and for sales to our allies. In fiscal 2000, AMARC returned 81 aircraft and reclaimed 18,657 aircraft parts, valued at $667 million. Approximately 40 percent of the reclaimed parts were shipped in direct support of the war fighter.

Partnering with Ogden Air Logistics Center at Hill AFB, Utah, AMARC is installing a global positioning system enhancement on operational A-10 aircraft. Sixty-one have been successfully modified at AMARC and returned to duty. A total of 100 aircraft will be modified by the end of fiscal 2001. AMARC stores and manages more than 318,000 line items of production tooling and special test equipment for future use in support of B-2, B-1B, A-10, C-5, C-141, F-4 and EA-6B aircraft.

In support of Air Combat Command, AMARC continues to regenerate and successfully deliver F-4 aircraft for the full-scale aerial target program.

AMARC is the elimination site for heavy bombers under the Strategic Arms Reduction Treaty, and thus far has successfully planned, managed and supervised the elimination of 281 B-52 aircraft. Crews are currently utilizing K-12 saws to "surgically" cut the outer skin, preserving parts for the active B-52Hs. This center also supports specialized training efforts of the Air Force's aircraft battle damage repair and crash-damage recovery teams, as well as the Defense Department and other federal agencies.

Weapon systems

AMARC's 600 employees maintain the specialized skills and knowledge necessary to work on more than 67 different models, designs and series of aircraft.

Area

Located in Tucson, Ariz., AMARC is a tenant organization on Davis-Monthan and occupies 2,600 acres.

Budget

$51 million

Web address

www.dm.af.mil/amarc/default.htm

Air Force Materiel Command Bands

Air Force Materiel Command bands support the global Air Force mission in war and peace by fostering pride in our national heritage and providing professional musical products and services for official military, recruiting and community relations events.

Responsibilities

The United States Band of Flight at Wright-Patterson Air Force Base, Ohio, and the United States Air Force Band of Liberty at Hanscom AFB, Mass., provide professional musical products and services in their geographic areas of responsibility as needed to support Air Force and Air Force Materiel Command objectives. Each band has more than 60 members.

Performing units

Band of Flight: Night Flight jazz ensemble, Huffman Prairie Winds woodwind quintet, Systems Go popular musical combo, Wright Brass quintet, contemporary clarinet quartet, concert band, marching band, protocol combos and individual musicians.

Band of Liberty: Ambassador Jazz Ensemble, New Horizons popular music combo, Colonial Brass quintet, New England Winds woodwind quintet, ceremonial band, marching band, protocol combos, concert band and individual musicians.

2000 performances

Band of Flight
More than 500
500,000 live audience

Band of Liberty
More than 400
2.5 million live audience

Area of responsibility

Band of Flight: Ohio, Indiana, Kentucky, Michigan, West Virginia and parts of Pennsylvania and Maryland, comprising a population of more than 40 million, more than 15 percent of the nation's population.

Band of Liberty: Maine, Vermont, New Hampshire, Connecticut, Rhode Island, Massachusetts and New York, comprising more than 114,000 square miles and a population of more than 31 million people.

Web addresses

Band of Flight
http://www.afmc.wpafb.af.mil/public/HQ-AFMC/PA/band

Band of Liberty
http://www.hanscom.af.mil/ESC-BA/

The Band of Liberty during one of its 400 annual performances.

A Band of Flight soloist.

U.S. Air Force Museum

Pitsenbarger medal of honor ceremony.

YF-22 on display at the U.S. Air Force Museum. Bottom right: Radio-controlled fly-in photo. (USAF Museum photos)

U.S. Air Force Museum, Wright-Patterson Air Force Base, Ohio, preserves and presents Air Force and military aviation history to approximately 1.2 million annual visitors and the American public.

Responsibilities

As the world's largest and oldest military aviation museum and the Midwest's largest tourist attraction, the museum employs visual exhibits, special events and educational programs to project Air Force heritage and illuminate the story of people and campaigns that comprise the service's history. With more than 300 aircraft and missiles and thousands of artifacts, the museum showcases the technological progression that has unfolded from the days of the Wright brothers to the age of stealth.

The museum is operated by the U.S. Air Force and falls under the operational control of the Air Force Materiel Command. The museum staff of 94 civil service employees and more than 400 volunteers work across a diverse spectrum of functional areas to sustain the museum's reputation as an internationally recognized historical institution.

The museum hosts a variety of special events and educational programs to connect the public to the history of Air Force aviation. Examples include the World War I fly-in, giant scale radio-controlled fly-in, behind-the-scenes tours, family day and the Wings and Things guest lecture series. Through its education division, the museum reaches more than 50,000 students, teachers and other adults annually with interactive activities, teacher workshops and outreach and tour programs.

In 2000, the museum placed on exhibit four sections of the Berlin Wall; opened an exhibit commemorating the 50th anniversary of the Korean War highlighting the Air Force's role in the conflict; held a World War I Fly-In event that attracted nearly 30,000 spectators and hosted a Medal of Honor ceremony posthumously recognizing Airman 1st Class William H. Pitsenbarger, a pararescueman who courageously gave his life in 1966 while aiding besieged U.S. ground troops caught in heavy combat in a Vietnam jungle.

In 2001, the museum plans to break ground for a third hangar, scheduled to open in 2003, allowing museum officials to revamp the flow of aircraft and exhibits, bring outdoor aircraft inside and create a gallery devoted to telling the story of the Cold War. The museum also will receive a final major piece of a B-2, and the stealth bomber is scheduled to go on display in 2003 following an extensive restoration process.

On display

More than 300 aircraft and missiles and thousands of artifacts
More than 10 acres of indoor displays
Memorial Park, with more than 400 statuary memorials and plaques
IMAX Theater with a six-story screen and a seating capacity of 500

Admission

Admission and parking are free. The museum is open daily from 9 a.m. to 5 p.m. (closed Thanksgiving, Christmas and New Year's Day).

Web address

http://www.wpafb.af.mil/museum/

Air Force Reserve and National Guard

The Air Force Reserve (Individual Mobilization Augmentees) and the Air National Guard provide trained individuals and units to accomplish tasks in support of national objectives, peacetime missions and mobilization readiness.

Air Force Reserve (AFMC)

Unit	Officer	Enlisted
Brooks, 311th HSW	8	19
Edwards, AFFTC	60	72
Eglin, AAC	64	152
Hanscom, ESC	91	63
Hill, OO-ALC	118	309
Kelly, SA-ALC	35	109
Los Angeles, SMC	123	4
McClellan, SM-ALC	8	21
Robins, WR-ALC	86	199
Tinker, OC-ALC	91	148
Davis-Monthan, AMARC	12	1
Wright-Patterson, HQ AFMC	95	19
Wright-Patterson, ASC	170	43
AFRL	178	6
Total	1139	1165

Air National Guard (AFMC)

Unit	Officer	Enlisted
130 EIS Salt Lake City, Utah	10	143
202 EIS Macon, Ga.	9	132
205 EIS Oklahoma City, Okla.	10	141
210 EIS Minneapolis, Minn.	7	103
211 EIS Indiantown Gap, Pa.	8	107
212 EIS Milford, Mass.	9	104
213 EIS Stewart ANGB, N.Y.	8	101
214 EIS New Orleans, La.	8	116
215 EIS Everett, Wash.	8	123
216 EIS Hayward, Calif.	10	103
217 EIS Springfield, Ill.	7	112
218 EIS St. Louis, Mo.	10	117
219 EIS Tulsa, Okla.	9	106
220 EIS Zanesville, Ohio	10	116
241 EIS Chattanooga, Tenn.	9	112
243 EIS South Portland, Maine	8	125
270 EIS Willow Grove, Pa.	9	104
272 EIS LaPorte, Texas	9	97
273 Beaumont, Texas	8	100
Total	166	2162

Medical technicians from the 146th Air Evacuation Squadron, Channel Island Station, Calif., Air National Guard, preparing to board a C-130 Hercules aircraft. (Photo by Tech. Sgt. Efrain Gonzalez)

Above: A Boeing 747-400 used to carry the Airborne Laser System to be flown by an IMA in the Reserve. Left: Fine tuning an unarmed AIM-9 missile on a District of Columbia Air National Guard F-16 jet fighter. (Photo by Army Master Sgt. Bob Haskell)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